

**REMARKS**

The Examiner rejected claims 10-12-16, 22, 28, 36 and 38-39 under 35 U.S.C. 102(b) as being unpatentable over US 5880524 to Xie. Applicants respectfully point out that claim 28 was canceled.

The Examiner rejected claims 17 and 40-42 under 35 U.S.C. 103(a) as being unpatentable over US 5880524 to Xie in view of US 5097387 to Griffith.

The Examiner rejected claims 11, 33-35 and 37 under 35 U.S.C. 103(a) as being unpatentable over US 5880524 to Xie in view of US 6637506 to Getkin et al.

Applicants respectfully traverse the §102(b) and §103(a) rejections with the following arguments.

**35 USC § 102**

As to claim 10, the Examiner states: "Xie discloses 10 discloses a method for dissipating heat from an electronic package having one or more components comprising: providing a substrate 402, column 4 line 46, having a first coefficient of thermal expansion (CTE); providing a lid 404, column 4 line 47, said lid having a top wall 424, a bottom wall 426, and sidewalls 445, column 5 lines 5-6 fig. 4, connecting said top and bottom walls said top, bottom and sidewalls defining a vapor chamber 405, column 5 line 3, said vapor chamber 405 containing a heat transfer fluid, column 5 line 7, said lid 404 having a second CTE expansion said second CTE about equal to said first CTE; providing a peripheral lid supports 409, column 4 line 55, said lid support 409 having sidewalls defining a cavity open at top and bottom surface of said lid support, fig. 4; attaching. said top surface 424 said peripheral lid support 409 to a bottom surface 426 of said sidewalls 445 of said lid and attaching said bottom surface of said peripheral lid support 409 to a periphery of said substrate 402, said bottom wall 426 of said lid 404, not attaching to said peripheral lid support, fig. 4; providing a solid thermal transfer medium 431, column 4 line 66 in direct contact with a back surface of each component 420/422, fig. 4, and outer surface of said bottom wall 426 of said lid 404; mounting each component 420 directly to a top surface of said substrate 402; and electrically connecting each component to said substrate, column 4 lines 42-46."

Applicants contend that claim 10, as amended, is not anticipated by Xie because Xie does not teach each and every feature of claim 10.

As a first example Xie does not teach "providing a peripheral lid support, said peripheral lid support separate from said lid." Applicants respectfully point out the peripheral lid support of Xie as illustrated in all FIGs. of Xie is integrally formed with heat pipe cover/lid 404 and is thus

not "separate" as Applicants claim 10 requires. See, for examples, FIG. 1A and FIG. 4 where there is no teaching that "said peripheral lid support separate from said lid" as Applicants claim 10 requires.

As a second example, Xie does not teach "attaching said top surface said peripheral lid support to a bottom surface of said sidewalls of said lid." With reference to the first argument presented *supra*, Applicants respectfully point out that there can be no attaching step if the lid support and the lid are a single element.

As a third example, Xie does not teach "said bottom wall of said lid not attached to or touching said peripheral lid support." With reference to the first and second arguments presented *supra*, Applicants respectfully point out that in FIG. 4 of Xie, the lid support 409 touches bottom wall 426.

Based on the preceding arguments, Applicants respectfully maintain that claim 10 is not unpatentable over Xie and is in condition for allowance. Since claims 11-17, 21, 22 and 33-43 depend from claim 10, Applicants respectfully maintain that claims 11-17, 21, 22 and 33-43 are likewise in condition for allowance.

As to claims 14, 38 and 39, the Examiner states: "Xie discloses the method further including providing supports 212, 308a-b, fig. 2-4, column 5 lines 15-18 and column 4 line 19, within said vapor chamber 405 between an upper wall 424 of said vapor chamber and said bottom wall 426, some or all of said supports aligned over some or all of said one or more components, wherein support bars 212 include through hole interconnecting said sub-chamber (450 bar is a mesh, column 5 line 9-10)."

Applicants contend that claim 14, as amended, is not anticipated by Xie because Xie does not teach each and every feature of claim 14. For example Xie does not teach "providing supports within said vapor chamber, each support having a vertical member extending between said top wall of said lid and said bottom wall of said lid, each vertical member perpendicular to said top and bottom walls and each vertical member aligned over one or more of said components."

Applicants also point out, that in Xie FIG. 2, there are walls 212 that would be, by simple geometric considerations not "over one or more of said components" as Applicants claim 14 requires. Applicants further point out, that in Xie FIG. 4, there is no portion of wick 450 positioned that satisfies "each vertical member aligned over one or more of said components." as Applicants claim 14 requires.

**35 USC § 103 Rejections**

As to claims 40-42, the Examiner states that "Xie does not disclose the method wherein support are vertical and do not extend beyond peripheral of said one or more components and wherein said sidewalls of said lid comprises bellows. However, Xie discloses the method wherein supports 212, fig. 2, 308a-b, fig. 3 or 450 fig. 4, are vertical. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the teaching of Xie as claimed, because it would have provided a similar supports function as disclosed by Xie.

With respect to 'bellows', the Applicant has no support data, which convinces that the particular claimed configuration is significant or is anything more than one of numerous configurations a person of ordinary skill in the art would find obvious for the purpose of providing mating surfaces or supporting structure. In re Dailey 149 USPQ 47, 50 (CCPA 1966). See also Glue Co. v. Upton 97 US 3,24 (USSC 1878)."

Applicants contend that claim 40 is not obvious in view of Xie in view of Griffith because Xie in view of Griffith does not teach or suggest every feature of claim 40. For example, Xie in view of Griffith does not teach or suggest "said supports are vertical bars and do not extend beyond peripheries of said one or more components."

Applicants respectfully point out that the sidewalls 212 of Xie FIG. 2, mesh 450 of Xie FIG. 4, extend beyond "the peripheries of said one or more components" and that Griffith is silent as to supports. Further, the Examiner's implied assertion that one of ordinary skill in the art would not extend the supports beyond the peripheries of said one or more components is without support and is an impermissible shifting of the burden of prima facie obviousness to the Applicant. Based on the preceding arguments, Applicants respectfully maintain that claim 40 is not unpatentable over Xie in view of Griffith and is allowable.

Applicants contend that claim 41 is not obvious in view of Xie in view of Griffith because Xie in view of Griffith does not teach or suggest every feature of claim 41. For example, Xie in view of Griffith does not teach or suggest "said sidewalls of said lid comprise bellows."

Applicants respectfully disagree with the Examiners assertion that no "Applicant has no support(ing) data." Applicants teach on page 14, starting on line 15: "Optionally, some or all of supports 215 may be aligned over some or all of components 105 and prevent excessive flexure and bulking of lower wall 135" and on page 19, starting on line 8: "FIG. 14 (illustrating bellows 225) is a cross-sectional view of a further lid construction that may be used in conjunction with the seventh and eighth embodiments of the present invention ... Each internal bellows 225 is aligned over a corresponding component 105." Based on the preceding arguments, Applicants respectfully maintain that claim 41 is not unpatentable over Xie in view of Griffith and is allowable.

Applicants contend that claim 42 is not obvious in view of Xie in view of Griffith because Xie in view of Griffith does not teach or suggest every feature of claim 42. For example, Xie in view of Griffith does not teach or suggest "providing supports within said vapor chamber, said supports comprising bellows, each bellows aligned over a corresponding component of said one or more components." Applicants believe the arguments presented *supra* in reference to claims 40 and 41 are applicable to claim 42. Based on the preceding arguments, Applicants respectfully maintain that claim 42 is not unpatentable over Xie in view of Griffith and is allowable.

As to claim 11, the Examiner states that "Xie discloses the method of claim 10, wherein said upper wall 424 of said lid 404 has second CTE, said the lower wall 426 of said lid 404 has a third CTE, and said components 422 have a fourth CTE. But Xie does not discloses the third CTE is about equal to the fourth CTE, and the second CTE different from the third CTE, and wherein the lower wall 426 of the lid is formed from different material than the sidewall 445 and an upper wall 424 of the lid.

However, Gektin discloses the method for dissipating heat wherein the lower wall (center portion) of the lid is formed from different material than the sidewalls and an upper of the lid (perimeter portion), column 3 lines 10-15 and column 4 lines 34-39. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the lid teaching of Gektin with Xie's method, because the selection of different material would have provided a thermal conductivity for suitable intended used, MPEP 2144.07."

Applicants contend that claim 11, as amended, is not obvious in view of Xie in view of Gektin et al. because Xie in view of Gektin et al. does not teach or suggest every feature of claim 11. For example, Xie in view of Gektin et al. does not teach or suggest "said bottom wall of said lid has a third coefficient of thermal expansion, each said component has a fourth coefficient of thermal expansion, said third coefficient of thermal expansion is about equal to said fourth coefficient of thermal expansion and said second coefficient of thermal expansion different from said third coefficient of thermal expansion."

First, Applicants respectfully contend that the Examiner has misapplied MPEP 2144.07. Applicants contend that the case law cited by MPEP 2144.07 covers only the actual material and not general properties. The case law invalidates substitution of a first material for a second material if it is known and shown in prior art that the first and second materials have the same

property. Applicants claim 11 is not to a specific material but to a relationship between properties of materials and request that the rejection be withdrawn. Applicants have attached a copy of MPEP 2144.07 to the appendix.

Second, Applicants take strong exception to the Examiners assertion that Xie discloses "wherein said upper wall 424 of said lid 404 has second CTE, said the lower wall 426 of said lid 404 has a third CTE" since upper wall 424 and lower wall 426 are integrally formed and thus must have the same CTE. There is either no first CTE or no second CTE in Xie.

Third, Applicants take strong exception to the Examiners assertion that Gektin supplies the missing limitations "the third CTE is about equal to the fourth CTE" because Gektin et al. is silent as the relationship between the CTEs of components (4th CTE) and the substrates (3rd CTE).

Fourth, the Examiner in asserting "it would have been obvious to one of ordinary skill in the art to use the lid teaching of Gektin with Xie's method, because the selection of different material would have provided a thermal conductivity for suitable intended used, MPEP 2144.07" is implying a prima facie case of obviousness (again under the un-intentional guise of a combination of references) based on an implied inherent relationship between thermal conductivity and coefficient of thermal expansion which the Examiner has not shown to be true and therefore is impermissibly shifting the burden of proof to Applicants. The Examiner is respectfully reminded that only one contrary example defeats a claim of inherency.

Based on the preceding arguments, Applicants respectfully maintain that claim 11 is not unpatentable over Xie in view of Gektin et al. and is allowable.

As to claims 33, 34 and 35, the Examiner states that "Xie does not disclose the third CTE is between about 25% and about 700% of second CTE. However, Gektin discloses the lid is



formed from different material than the sidewalls and an upper of the lid (perimeter portion), column 3 lines 10-15 and column 4 lines 34-39. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the lid teaching of Gektin with Xie's method, because the selection of different material would have provided a thermal conductivity for suitable intended used, MPEP 2144.07."

Applicants contend that claims 33, 34 and 35 are not obvious in view of Xie in view of Gektin et al. for all the reasons given *supra* in respect to claim 11, particularly the Examiners assertion of MPEP 2144.07, and in view of the additional two arguments *infra*.

(1) The Examiner has not indicated in his rejection of claims 34 and 35 that the limitations of claims 34 and 35 are taught by the combination of references.

(2) Applicants can not determine how to derive the limitations "wherein said third coefficient of thermal expansion is between about 25% and about 700% of said second coefficient of thermal expansion", "wherein each said component has a fourth coefficient of thermal expansion and said third coefficient of thermal expansion is between about 50% to about 700% of said fourth coefficient of thermal expansion" and "wherein said first coefficient of thermal expansion is between about 25% to about 700% of said second coefficient of thermal expansion." from any teaching in Xie or Gektin et al.

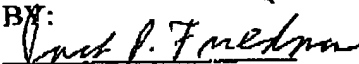
Based on the preceding arguments, Applicants respectfully maintain that claims 33, 34 and 35 are not obvious in view of Xie in view of Gektin et al. and are allowable.

**CONCLUSION**

Based on the preceding arguments, Applicants respectfully believe that all pending claims and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invite the Examiner to contact the Applicants' representative at the telephone number listed below. The Director is hereby authorized to charge and/or credit Deposit Account 09-0457.

Respectfully submitted,  
FOR: Alcoe et al.

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